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CASE CORPORATION

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Section

1210

GENERAL SPECIFICATIONS

4490 TRACTORS

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Section

2110

ENGINE, FRONT AXLE AND TRANSMISSION REMOVAL

(With CAS-10500 Tractor Splitting Set)

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3210

FUEL SYSTEM AND FILTERS

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Section

4201

ELECTRICAL SYSTEM TROUBLESHOOTING

Written In *C*lear
*A*nd
*S*imple
*E*nglish

Before making any of the tests in this section, make sure that both tractor batteries are fully charged. Inspect the battery cable connections at the battery posts. If there is too much corrosion or the connections are dirty, clean the battery posts and cable connections with a wire brush. Make sure that the connections are tight when the cables are installed again. See Section 4235 to test and service the batteries, if necessary.

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Section

5201

TROUBLESHOOTING THE CASE SOLID STATE SELECTIVE STEERING SYSTEM

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Section

6201

TROUBLESHOOTING
RPS-34 POWER SHIFT TRANSMISSION

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7210

BRAKE PEDAL, MASTER CYLINDER, SERVICE AND PARKING BRAKE

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Section
8202

TROUBLESHOOTING HITCH SYSTEM

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Section

9205

AIR CONDITIONER TROUBLESHOOTING
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Section

15201

TRACTOR STEERING SYSTEM OIL FLOWS

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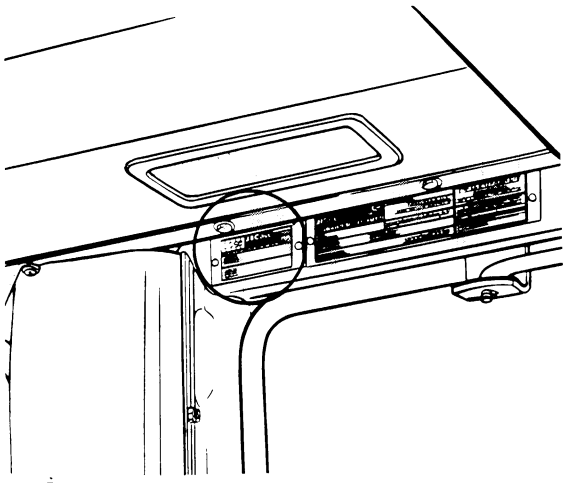
CASE CORPORATION

Rac 8-22020

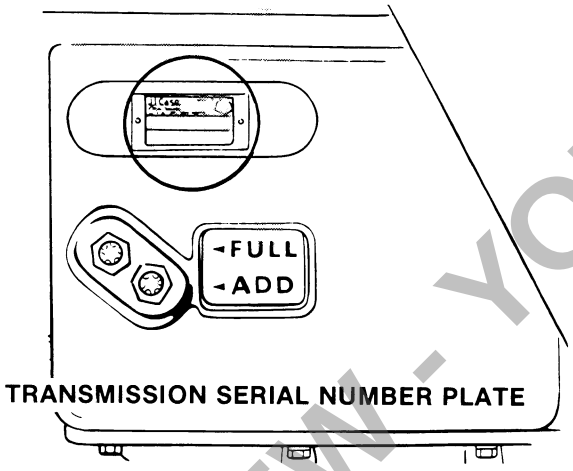
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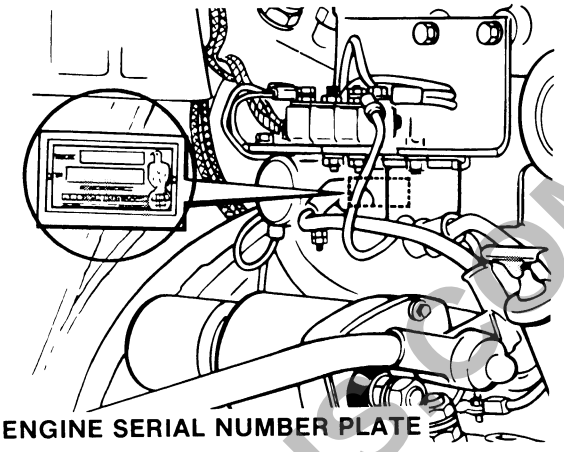
SERIAL NUMBERS



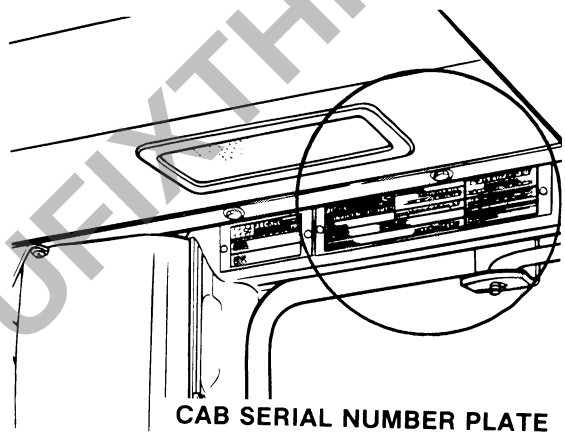
MODEL AND PRODUCT IDENTIFICATION NUMBER PLATE



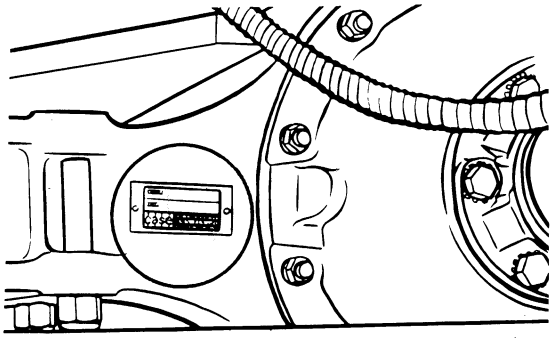
TRANSMISSION SERIAL NUMBER PLATE



ENGINE SERIAL NUMBER PLATE



CAB SERIAL NUMBER PLATE



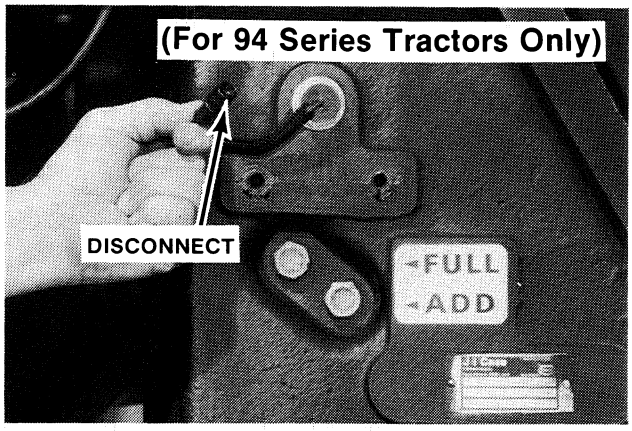
AXLE SERIAL NUMBER PLATE (Front and Rear)

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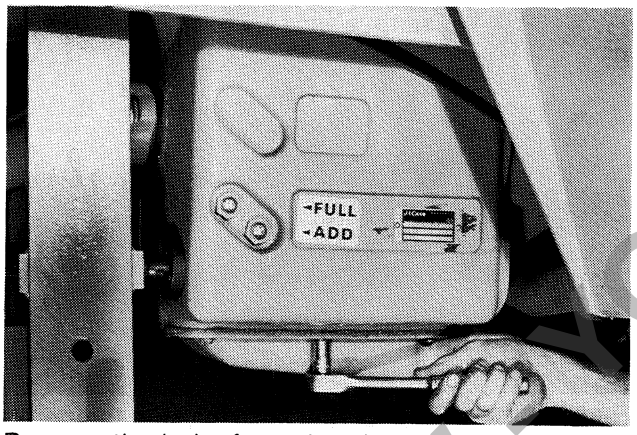
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STEP 103



Disconnect the transmission speed sensor from the transmission harness. See Section 6240 of the service manual.

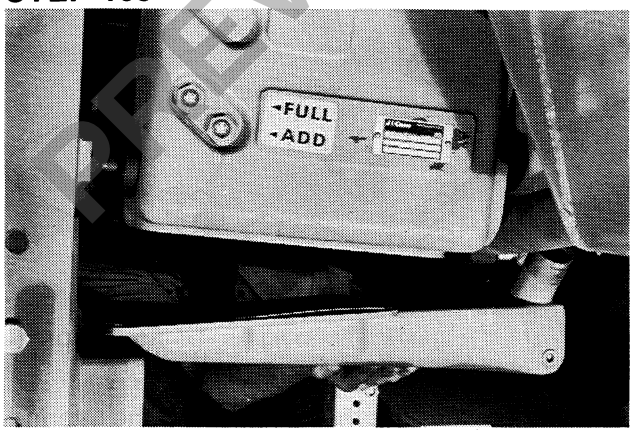
STEP 104



Remove the bolts from the oil manifold.

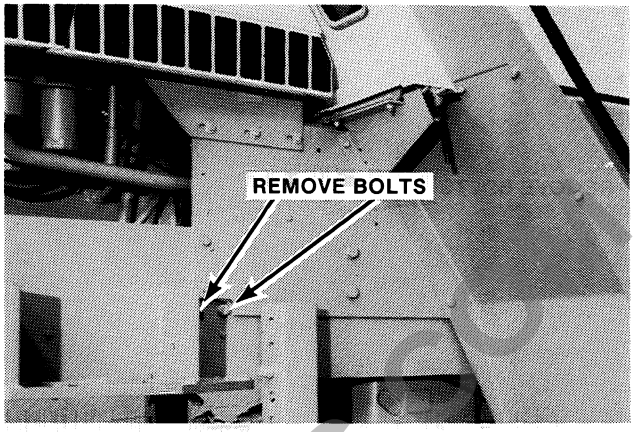
NOTE: *The oil manifold must be removed to prevent damage to the fuel tank crossover line on 4490, 4690, 4494 and 4694 tractors.*

STEP 105



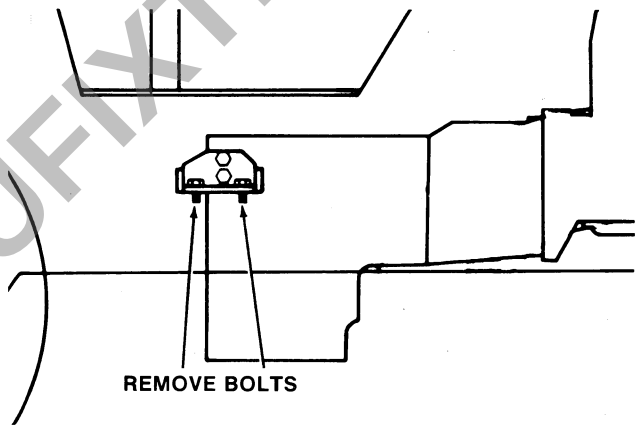
Remove the oil manifold and inlet screen assembly from the bottom of the transmission housing.

STEP 106



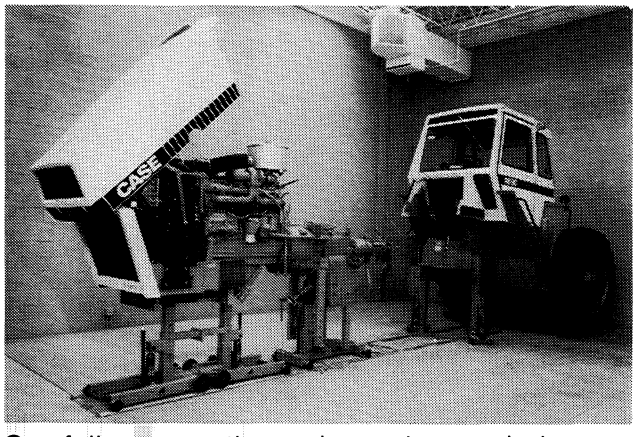
Remove the bolts and spacers on each side of tractor from the torque tube.

STEP 107



Remove the rear transmission retaining bolts on each side of the tractor.

STEP 108



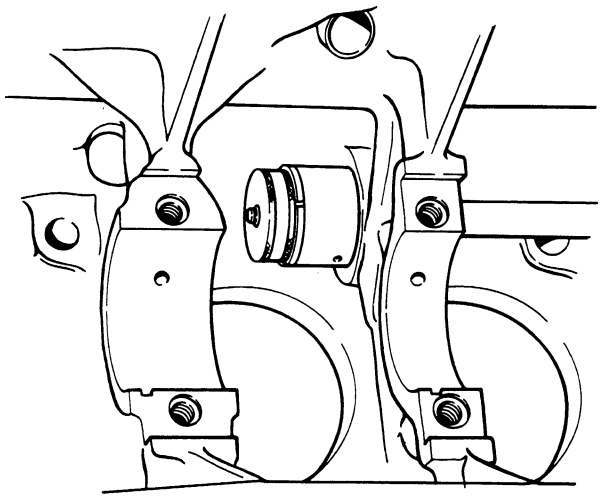
Carefully remove the engine and transmission assembly from the frame.

NOTE: *When removing the engine and transmission assembly from the tractor frame you must be careful not to damage the electrical wiring or hydraulic tubing.*

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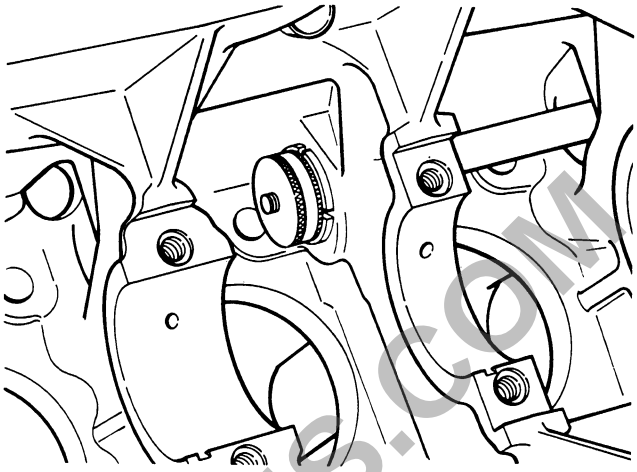
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STEP 162



Install the bushing on the puller. Align the oil holes. Pull the bushing in position.

STEP 163



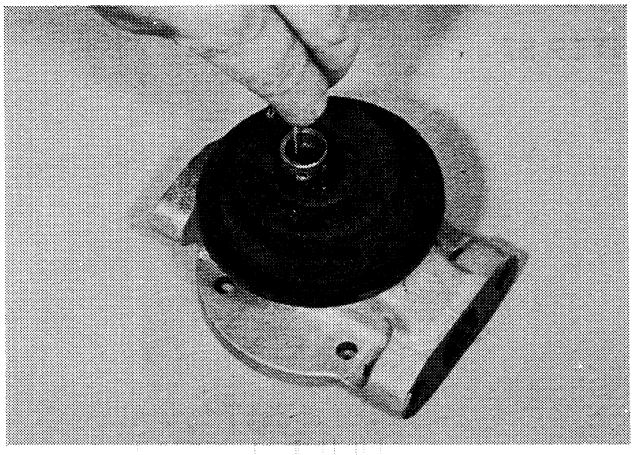
Pull the bushing in the block bore until the bushing is level with the bore. Remove the puller.

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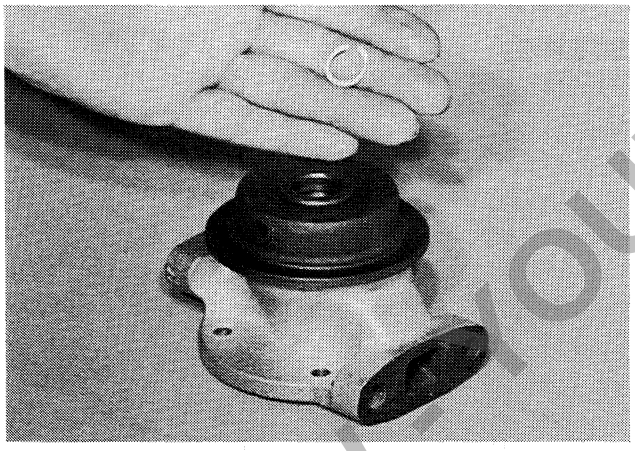
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STEP 52



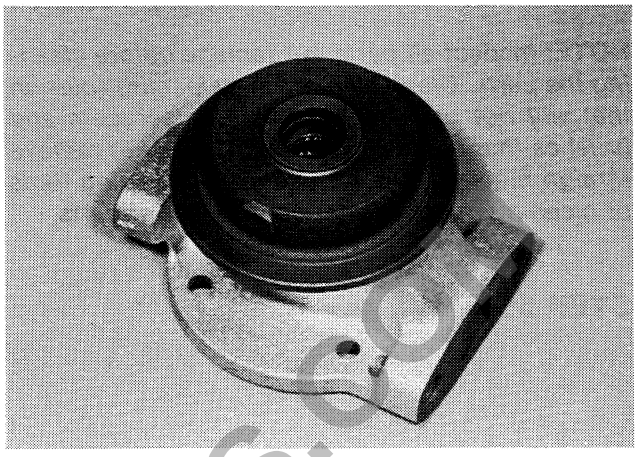
Pull the bearing from the housing. Use a wire hook. Discard the bearing.

STEP 53



Remove the inner retaining ring.

STEP 54

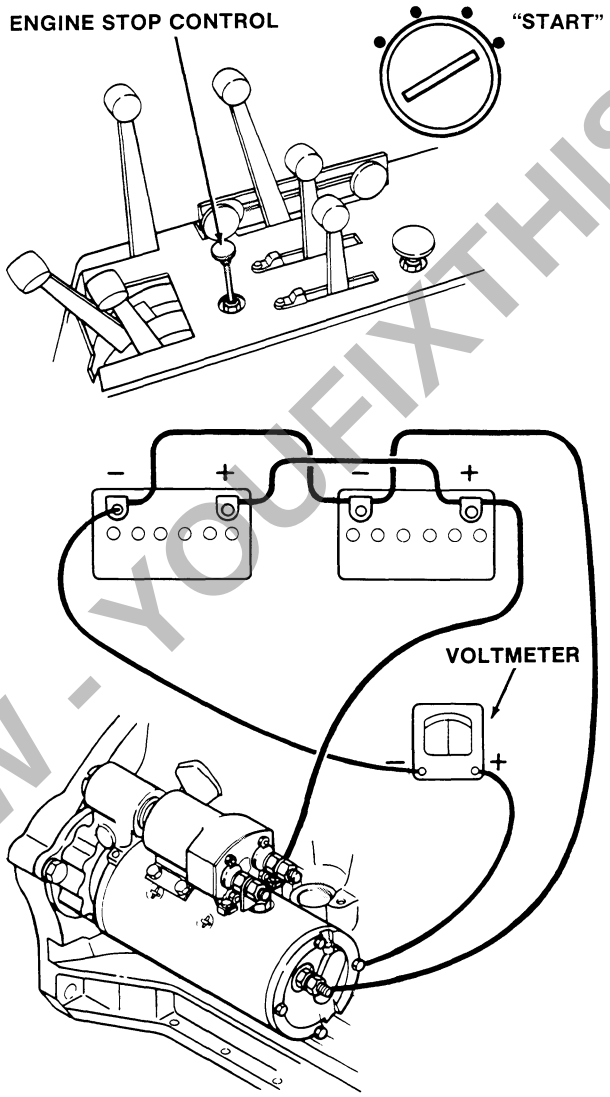


Center housing disassembled.

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STEP	PROCEDURE	RESULT
3C Check for negative cable and ground voltage drop as follows:	a. Pull engine fuel stop control out. b. Connect a voltmeter as shown below. c. Turn key switch to the start position and check the voltmeter reading. 	Voltage while engine is being turned by starter: a. 0.0 to 0.5 volt - Good, Continue to Step 3E b. More than 0.5 volt - Bad, Continue to Step 3D
3D Causes for more than 0.5 volts in Step 3C: 1. Negative battery cables or negative battery posts have too much corrosion or are loose. 2. Loose connection or to much corrosion of negative battery cable at the starter ground stud. 3. Loose end cap on starter assembly.		Repair as necessary and Go back to Step 1B

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NO LOAD TEST
(See Figure 2)

PROCEDURE

The battery or batteries that are connected in parallel must be at full charge before making this test.

1. The battery load control must be in the "off" position.
2. Turn the voltage selector to the 16 volt position.
3. Connect the positive ampere lead to the battery positive terminal.
4. Connect the negative ampere lead to the "B" terminal of the starter solenoid.
5. Connect a jumper cable from the battery negative terminal to the starter frame.
6. Connect the positive volt lead to the solenoid "B" terminal and the negative volt lead to the starter frame.
7. Connect a jumper lead from the solenoid "S" terminal to the solenoid "B" terminal.
8. Turn the battery lead control clockwise until the no load test voltage and amperage is reached while checking the starter rpm. See pages 4012-2 and 4012-3 for starter specifications.

IMPORTANT: *Do not operate the starting motor more than 30 seconds at a time without stopping to permit the starting motor to cool for at least two minutes.*

RESULTS OF THE TEST

1. Rated amperage and no-load speed indicates a normal condition of the starting motor.
2. Low free speed and high amperage indicates:
   A. Too much friction. Tight, dirty or worn bearings, a bent armature shaft or loose pole shoes will cause the armature to drag.
   B. One or more coil layers in the armature making contact with one another. The armature can be tested on an armature growler.
   C. One or more coil layers in the armature or the commutator assembly has found a ground to the armature shaft. The armature can be tested on an armature growler.
3. Operating without high amperage indicates:
   A. A direct ground in the terminal or fields.
   B. Bearings that do not turn. Turn the armature by hand to make sure that the bearings turn.
4. The starter motor does not operate and there is no amperage are indications of:
   A. A break in the field coils. This can be checked after disassembly by checking the internal connections and checking the circuit with a test lamp.
   B. A break in the armature coils. Check the commutator for badly burnt bars after disassembly.
   C. Broken brush springs, worn brushes, high insulation between the commutator bars or other causes which can prevent good contact between the brushes and commutator.
5. Low no-load speed and low amperage indicates:
   A. High internal resistance because of bad connections, bad leads, dirty commutator and causes given in item 4.
6. High free speed and high amperage indicate a coil layer in the field coil assembly making contact with another coil layer. Replace the field coil assembly and check for better performance.

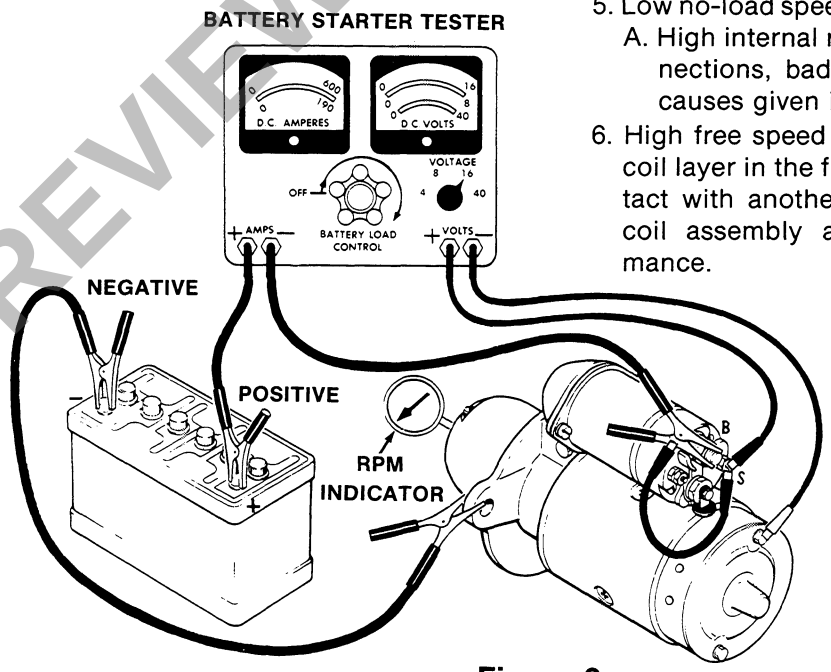
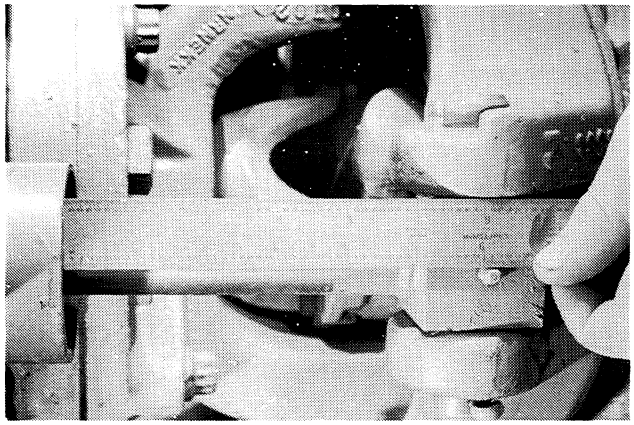


Figure 2

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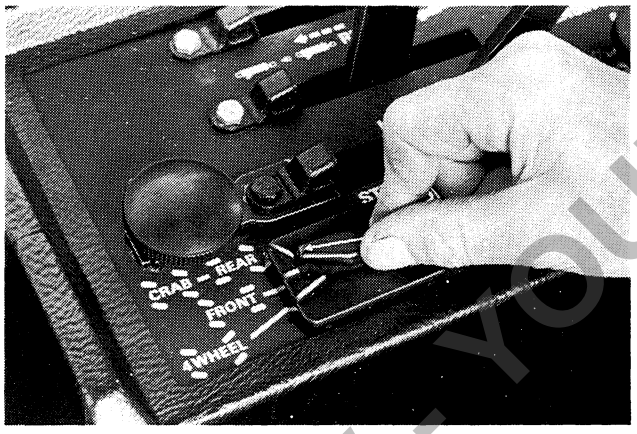
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STEP 128



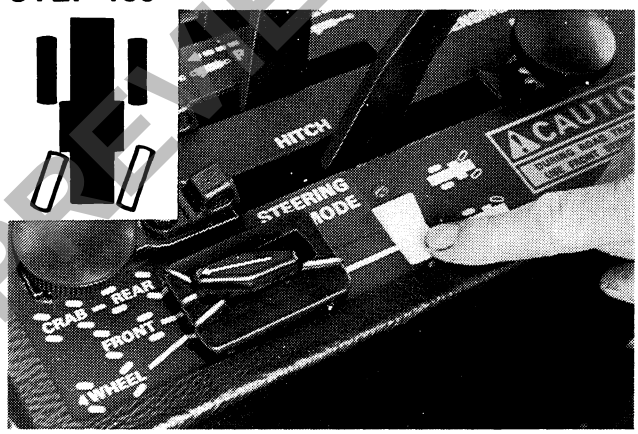
Measure the extension of the left rear cylinder. Make a record of this measurement.

STEP 129



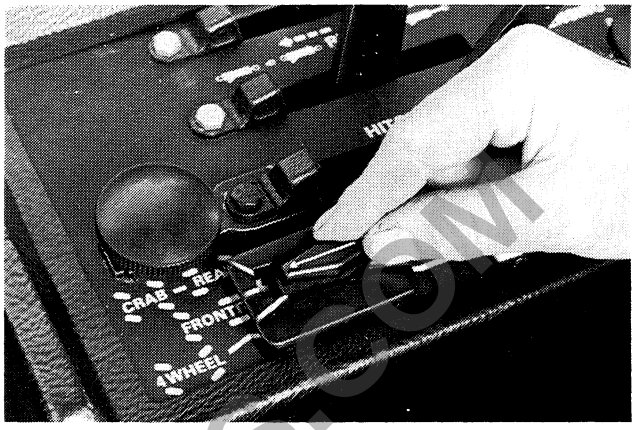
Move the steering mode switch to "REAR-CRAB" position.

STEP 130



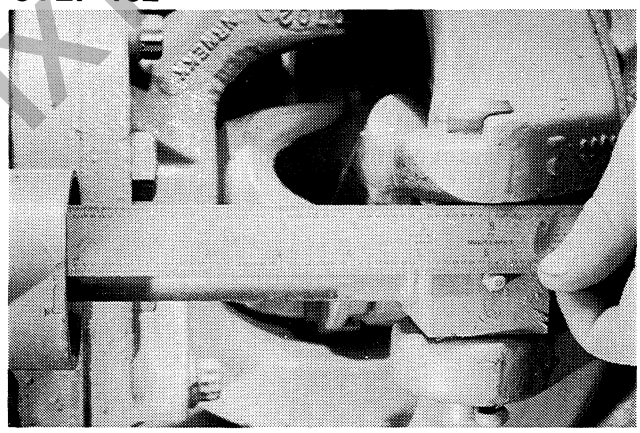
Press the LH side of the steering control switch to turn the wheels to a full LH turn.

STEP 131



Move the steering mode switch to "FRONT". Permit the wheels to correct and completely stop moving.

STEP 132



Measure the extension of the left rear cylinder. Make a record of this measurement.

If this measurement is approximately 1/16" (1.588 mm) less than the measurement from Step 128, sensitivity is CORRECT and requires no further adjustment. Continue to Step 141.

STEP 133

If the difference between the measurements in Step 128 and Step 132 is MORE than 1/16" (1.588 mm), sensitivity is set too low. This will cause the rear wheels not to track correctly. See "Increasing Sensitivity" in this section.

STEP 134

If the difference between the measurements in Step 128 and Step 132 is LESS than 1/16" (1.588 mm), it can indicate that the system is too sensitive. If the system is too sensitive it will cause the rear wheels to vibrate in the "FRONT" and "4-WHEEL" Modes. If adjustment is necessary, see "Decreasing Sensitivity" in this section.

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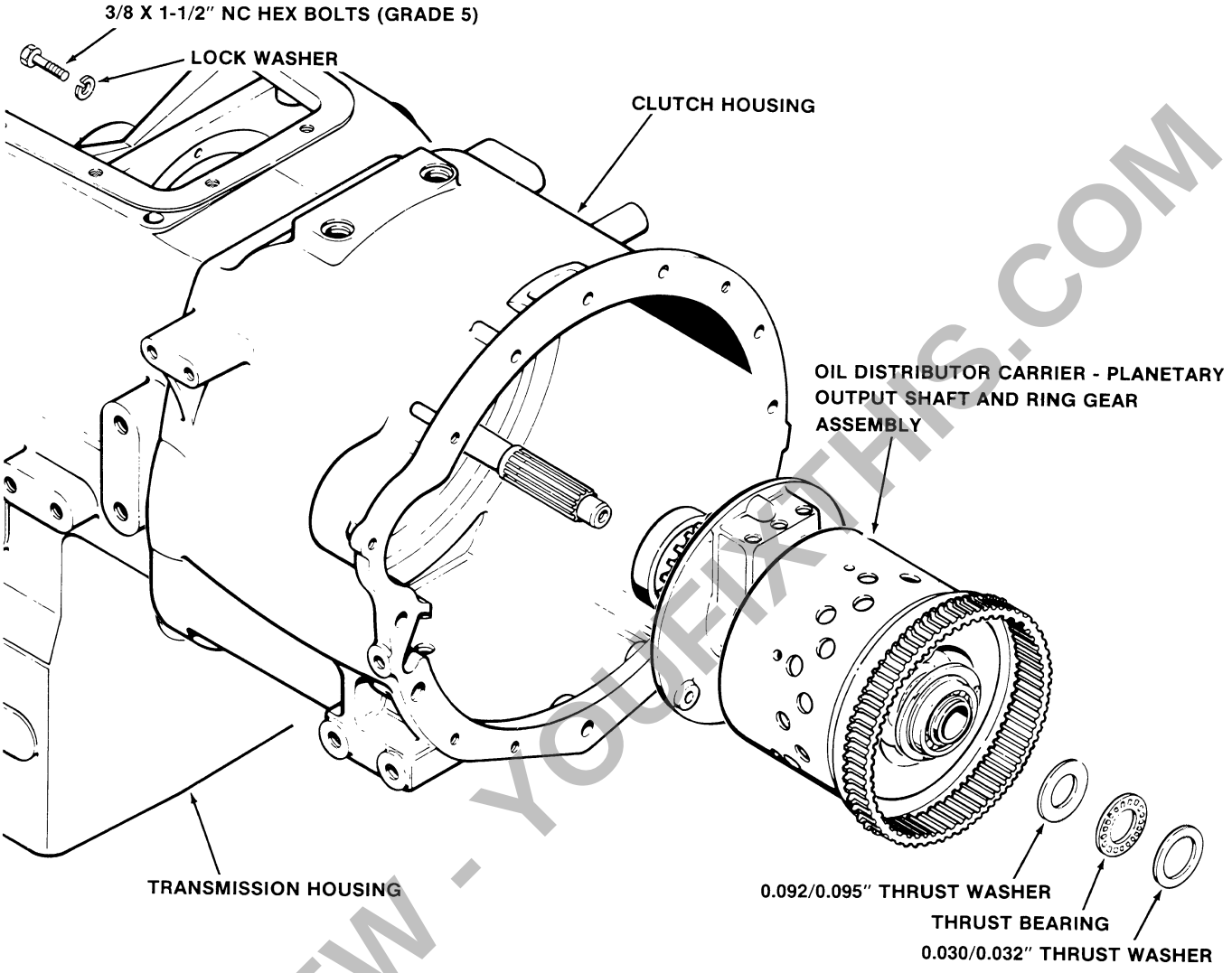
SPECIFICATIONS

	U.S. Value	Metric Value
Valve Spool Spring:		
Free Length	2.0″	50.8 mm
OD	0.840″	21.34 mm
Wire Diameter	0.121″	3.07 mm
Number of Coils	10.5	10.5
Compress to 1.406″ (35.71 mm)	54.2 to 66.2 lbs.	241 to 294 N
Compensator Check Poppet Spring:		
Free Length	0.496″	12.6 mm
OD	0.156″	3.96 mm
Wire Diameter	0.018″	0.46 mm
Number of Coils	16	16
Compress to 0.437″ (11.1 mm)	0.216 to 0.264 lbs.	0.96 to 1.17 N

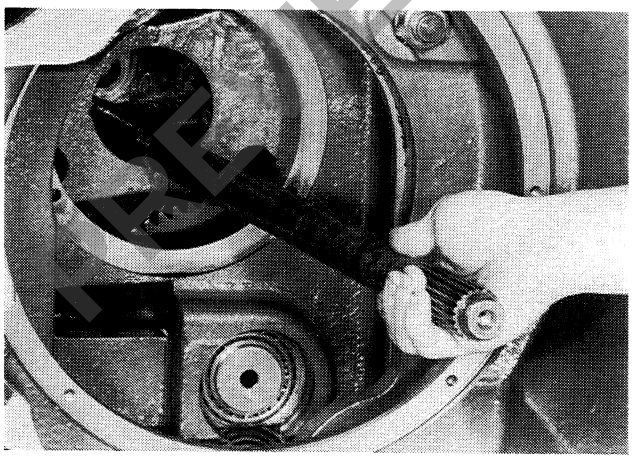
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INSTALLING THE OIL DISTRIBUTOR CARRIER PLANETARY OUTPUT SHAFT AND PLANETARY RING GEAR ASSEMBLY

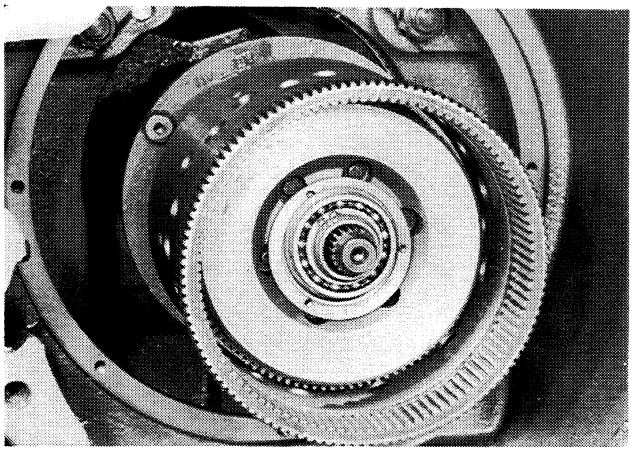


STEP 149



Install the PTO drive shaft. The end of the shaft with the snap ring groove must face toward the front of the tractor. The other end of the PTO drive shaft must engage the hydraulic pump input shaft in the hydraulic pump housing.

STEP 150



Install the oil distributor carrier - planetary output shaft and the ring gear assembly into the transmission case.

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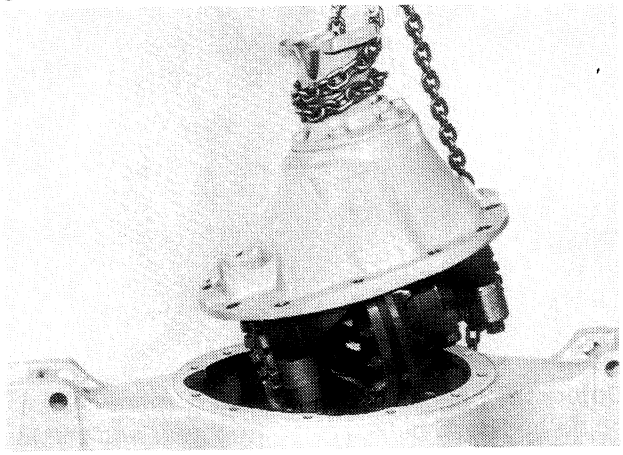
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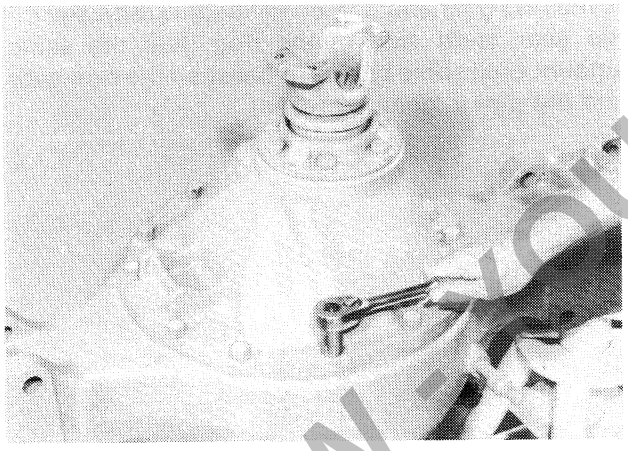
Checking The Side Gear Torque

STEP 129



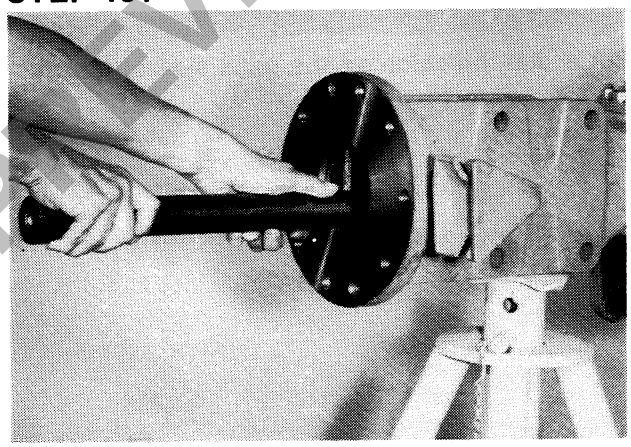
Put the differential assembly into the axle housing.

STEP 130



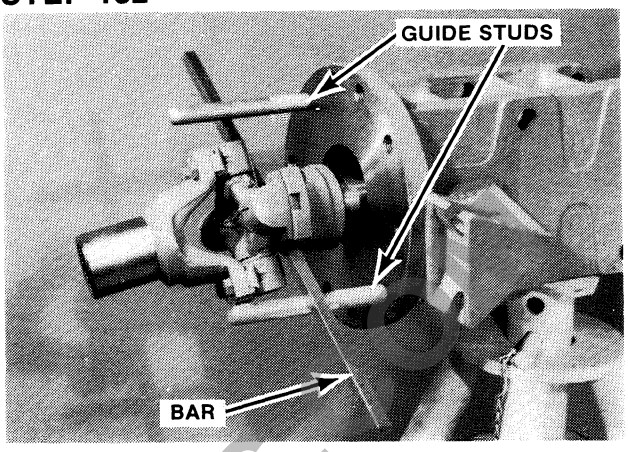
Install the retaining bolts, but only tighten the bolts a small amount.

STEP 131



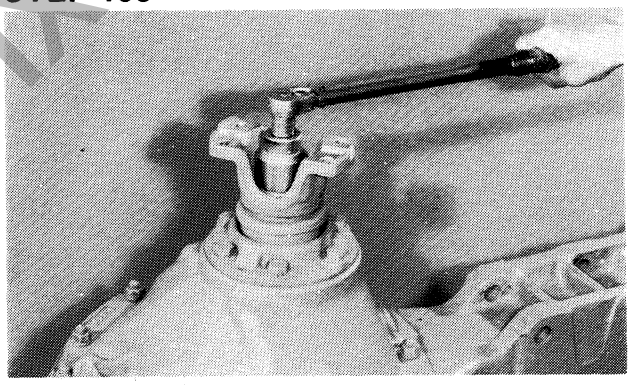
Install one axle drive shaft.

STEP 132



Install a universal joint. Put two guide studs in two of the holes in the trunnion mounting flange. Install a bar through the universal joint, so that it comes in contact with the guide studs. This will keep the drive shaft from rotating.

STEP 133



Measure the torque needed to turn the pinion shaft. The correct torque needed to turn the pinion shaft is as follows:

Pinion Shaft with 1-1/8 Inch Dia. Nut -
125 to 185 lb ft (170 to 250 Nm) (17.0 to 25.0 kgm)

Pinion Shaft with 1-1/4 Inch Dia. Nut -
185 to 225 lb ft (250 to 305 Nm) (25.0 to 30.5 kgm)

If the torque reading is not in the above range, the thickness of the thrust washer that was installed in Step 115 will have to be changed. See examples below:

TO INCREASE TORQUE - If the torque measured was less than specified above, install thicker thrust washers than the thrust washers that were measured in Step 114.

TO DECREASE TORQUE - If the torque measured was more than specified above, install thinner thrust washers than the thrust washers that were measured in Step 114.

NOTE: *Repeat Steps 115 through 133 until the correct amount of torque needed to turn the pinion shaft is found.*

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Section

8225

TRIPLE HYDRAULIC PUMP
Charge Pump - P1
Piston Pump - P2
Gear Pump - P3
Compensator Valve - CV1
(Part of P2 Piston Pump)

Written In *Clear And Simple English*

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CASE CORPORATION

Rac 8-21920

Printed in U.S.A.
August, 1979

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HITCH CONTROL LINKAGE

NOTE: *Replace all worn parts and parts that have damage.*

1. Hand lever knob.

2. Hand lever.

3. Hand lever bushings. Install the bushings into each side of the hand lever until they are even with the outside of the bushing bores.

4. Stop bolts - 3/8 x 3/4" NC round head with square neck. See Step 77 to adjust the stop bolts.

5. Flat washers - 13/32 x 15/16 x 5/64" (10.32 x 20.64 x 1.98 mm).

6. Lock washers - 3/8".

7. Stop bolt nuts - 3/8" NC.

8. Friction discs.

9. Bolt for friction discs - 3/8 x 4-3/4" NC round head with square neck.

10. Friction disc spring. Check the spring with a spring compression tester. The spring must have the following specifications:

Free Length ..... 1.0 " (25.4 mm)
Number of Coils 3
OD ..... 0.69" (17.53 mm)
Wire Diameter ..... 0.148" (3.759 mm)
Compress to 0.75" (19.05 mm) ... 246 to 272 lbs. (1 094 to 1 209 N)

11. Flat washer - 7/16 x 1 x 5/64" (11.11 x 25.4 x 1.98 mm).

12. Lock nut - 3/8". See Step 76 to adjust nut.

13. Hand lever shaft.

14. Roll pin - 3/16 x 1".

15. Retaining rings. Use only when there are three or less control levers assembled on the control lever shaft.

16. Hand nut.

17. Lock washer - 3/8".

18. Lever stop clamp.

19. Bolt for hand nut - 3/8 x 3/4" NC round head with square neck.

20. Control cable.

21. Jam nuts for ball joint ends - 1/4" NF.

22. Ball joint for hand lever end. Install the cable (20) 0.50" (12.7 mm) inside of the ball joint (22) and tighten jam nut (21). See Inset A.

23. Ball joint for valve end of cable. Install the cable (20) 0.30" (7.62 mm) inside of the ball joint (23) and tighten the jam nut (21). See Inset B.

24. Jam nuts for connecting ball joints to the hand lever (2) and valve linkage lever (26) - 1/4" NF.

25. Lock washers - 1/4".

26. Valve linkage lever.

27. Clevis pin - 5/16" OD x 15/16".

28. Cotter pin - 3/32 x 3/4".

29. Hitch valve assembly.

30. Control rod for valve linkage lever.

31. Jam nuts for ball joint ends - 5/16" NF.

32. Ball joint ends for control rod (30). Install the ball joint ends (32) on to the control rod (30) and tighten the jam nuts (31). See Step 76 to adjust correctly.

33. Nuts for connecting ball joints (32) to the rock-shaft (35) and the valve linkage lever (26) - 5/16" NF.

34. Lock washers - 5/16".

35. Rock shaft.

36. Control cable bracket.

37. Bolts - 1/2 x 1-1/4" NC (Grade 5).

38. Lock washers - 1/2".

39. Bolts - 5/16 x 2-3/4" NC (Grade 6).

40. Nuts - 5/16" NC.

41. Lock washers 5/16".

NOTE: *See Steps 75 through 77 and Steps 98 and 99 to adjust the hitch linkage.*

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